No. 9400018

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The University of Georgia Research Foundation, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE VARIETY. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Doles'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of October in the year of our Lord one thousand nine hundred and ninety-five.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*

The University of Georgia Research Foundation, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.

G83-198

3. VARIETY NAME

DOLES

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*

Boyd Graduate Studies Research Center
University of Georgia
Athens, GA 30602-7411

5. PHONE *(include area code)*

(706) 542-6512

FOR OFFICIAL USE ONLY

PVPO NUMBER

9400018

FILING
Date: Nov. 10, 1993
Time: 9:30 ☒ A.M. ☐ P.M.

FEES RECEIVED
Filing and Examination Fee: $ 2325.00
Date: Oct. 29, 1993
Certificate Fee: $ 300.00
Date: Sept. 5, 1995

6. GENUS AND SPECIES NAME

Glycine max

7. FAMILY NAME *(Botanical)*

Leguminosae

8. CROP KIND NAME *(Common Name)*

Soybean

9. DATE OF DETERMINATION

1983

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

Georgia

12. DATE OF INCORPORATION

17 Nov 1978

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Dr. Janice A. Kimpel
Vice-President Office for Research
Boyd Graduate Studies Research Center
University of Georgia
Athens, GA 30602-7411

PHONE *(include area code)*: (706) 542-5929

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

a. ☒ Exhibit A, Origin and Breeding History of the Variety
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety.
d. ☐ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 10/26/93
g. ☒ Filing and Examination Fee. ($2,325) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)* Dft 6 Sept. 1995
☒ YES (If "YES," answer items 16 and 17 below) ☐ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? Dft 6 Sept. 1995
☒ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? Dft 6 Sept. 1995
☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act Give date _____)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," give names of countries and dates)
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
Joe L Key Joe L. Key	Executive Vice President	10-22-93
SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE

EXHIBIT A
UNIVERSITY OF GEORGIA RESEARCH FOUNDATION APPLICATION FOR DOLES
ORIGIN AND BREEDING HISTORY

1980	Cross of 'D74-7741' x 'Young' made in Athens, GA
1980-81	F_1 grown during the winter at Isabela, Puerto Rico
1981	F_2 was grown in Athens, GA
1981-82	F_3 and F_4 generations were advanced in the winter at Isabela, Puerto Rico
1982	F_5 was grown in Athens, GA
1982-83	$F_{5:6}$ lines were screened for resistance to race 3 of soybean cyst nematode and southern root-knot nematode in the greenhouse during the winter
1983	$F_{5:6}$ plant rows were grown in Athens, GA. Plant row #83-198 was selected and composited after it was determined to be stable and true breeding for major characteristics.
1984	Tested as G83-198 in Athens, GA in 2 reps
1985	Tested at Athens and Plains, GA in 2 reps/location
1986	Tested at Athens, Plains, and Griffin, GA in 3 reps/location
1987	Entered in USDA Uniform Preliminary Test VI grown at 8 locations (2 reps/location). Also, evaluated at Athens and Midville, GA on race 3 soybean cyst nematode-infested soil (3 reps/location).
1988	Evaluated in USDA Uniform Regional Test VI at 31 locations (3 reps/location). Also, evaluated at Athens, GA on race 3 soybean cyst nematode-infested soil (3 reps).
1989	Evaluated in USDA Uniform Regional Test VI at 28 locations (3 reps/location). Grown at 7 locations (3 reps/location) in the Georgia Variety Trials. Grown at Athens and Midville, GA on race 3 soybean cyst nematode-infested soil (3 reps/location).
1990	Evaluated in USDA Uniform Regional Test VI at 25 locations (3 reps/location). Grown at 7 locations (3 reps/location) in the Georgia Variety Trials. Grown at Midville GA on race 3 soybean cyst nematode-infested soil (3 reps).
1991	Evaluated at 8 locations (3 reps/location) in the Georgia Variety Trials.
1992	Evaluated at 8 locations (3 reps/location) in the Georgia Variety Trials.
1993	Released as Doles

EXHIBIT B
UNIVERSITY OF GEORGIA RESEARCH FOUNDATION APPLICATION FOR DOLES
NOVELTY STATEMENT

To our knowledge Doles most resembles Bryan, Young, Brim, Centennial, and Leflore. Differences include but are not limited to the following:

1. Frogeye leaf spot - Doles is resistant to all known races of frogeye leaf spot (it contains the *Rcs3* gene) whereas Centennial, Bryan, and Leflore are susceptible to many of the common races.

2. Race 3 of soybean cyst nematode - Doles is resistant to race 3 of soybean cyst nematode whereas Brim and Young are susceptible.

3. Flower color - Doles has white flowers whereas Bryan, Centennial, and Leflore have purple flowers.

4. Pubescence color - Doles has tawny pubescence whereas Brim and Young have gray pubescence.

5. Hilum color - Doles has black hilum whereas Young and Brim have buff hilum.

6. Races 9 and 14 of soybean cyst nematode - Doles is susceptible to races 9 and 14 of soybean cyst nematode whereas Leflore is resistant.

7. Leaf color - Doles has dark green leaf color whereas Bryan, Centennial, and Leflore have medium green leaf color.

FORM APPROVED: OMB NO. 0581-0055

EXHIBIT (Soybean)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (Glycine max L.)

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
The University of Georgia Research Foundation, Inc.	G83-198	DOLES

ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code)
Boyd Graduate Studies Research Center
University of Georgia
Athens, GA 30602-7411

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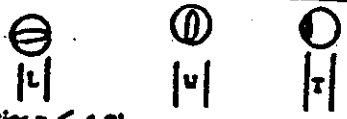
Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g., [0][9]). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:

[2]



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ **2. SEED COAT COLOR:** (Mature Seed)

[1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

[2] 1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ **4. SEED SIZE:** (Mature Seed)

[1][2] Grams per 100 seeds

★ **5. HILUM COLOR:** (Mature Seed)

[6] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other (Specify) _____

★ **6. COTYLEDON COLOR:** (Mature Seed)

[1] 1 = Yellow 2 = Green

★ **7. SEED PROTEIN PEROXIDASE ACTIVITY:**

[2] 1 = Low 2 = High

★ **8. SEED PROTEIN ELECTROPHORETIC BAND:**

[ ] 1 = Type A ($SP1^a$) 2 = Type B ($SP1^b$)

★ **9. HYPOCOTYL COLOR:**

[2] 1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ **10. LEAFLET SHAPE:**

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Specify) _____

11. LEAFLET SIZE:

[2] 1 = Small ('Amsoy 71'; 'AS312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

[3] 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
3 = Dark Green ('Gnome'; 'Tracy')

★ **13. FLOWER COLOR:**

[1] 1 = White 2 = Purple 3 = White with purple throat

★ **14. POD COLOR:**

[1] 1 = Tan 2 = Brown 3 = Black

★ **15. PLANT PUBESCENCE COLOR:**

[2] 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

[2] 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
3 = Bushy ('Gnome'; 'Govan')

★ **17. PLANT HABIT:**

[1] 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Wilf')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

★ **18. MATURITY GROUP:**

[0][9] 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

★ **19. DISEASE REACTION:** (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

★ [2] Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

★ [0] Bacterial Blight (*Pseudomonas glycinea*)

★ [0] Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

★ [0] Brown Spot (*Septoria glycines*)

Frogeye Leaf Spot (*Cercospora sojina*)

★ [2] Race 1 [2] Race 2 [2] Race 3 [2] Race 4 [2] Race 5 [2] Other (Specify) to all reported races

[0] Target Spot (*Corynespora cassiicola*)

[0] Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)

[0] Powdery Mildew (*Microsphaera diffusa*)

★ [0] Brown Stem Rot (*Cephalosporium gregatum*)

[2] Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

★ [0] Pod and Stem Blight *(Diaporthe phaseolorum var; sojae)*

[0] Purple Seed Stain *(Cercospora kikuchii)*

[0] Rhizoctonia Root Rot *(Rhizoctonia solani)*

Phytophthora Rot *(Phytophthora megasperma var. sojae)*

★ [0] Race 1 [0] Race 2 [0] Race 3 [0] Race 4 [0] Race 5 [0] Race 6 [0] Race 7

[0] Race 8 [0] Race 9 [ ] Other *(Specify)* _____

VIRAL DISEASES:

[0] Bud Blight (Tobacco Ringspot Virus)

[0] Yellow Mosaic (Bean Yellow Mosaic Virus)

★ [0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] Pod Mottle (Bean Pod Mottle Virus)

★ [2] Seed Mottle (Soybean Mosaic Virus) (strain G1)

NEMATODE DISEASES:

Soybean Cyst Nematode *(Heterodera glycines)*

★ [0] Race 1 [0] Race 2 [2] Race 3 [1] Race 4 [1] Other *(Specify)* Races 9 and 14

[0] Lance Nematode *(Hoplolaimus Colombus)*

★ [2] Southern Root Knot Nematode *(Meloidogyne incognita)*

★ [0] Northern Root Knot Nematode *(Meloidogyne Hapla)*

[1] Peanut Root Knot Nematode *(Meloidogyne arenaria)*

[1] Reniform Nematode *(Rotylenchulus reniformis)*

[0] OTHER DISEASE NOT ON FORM *(Specify)*: _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

★ [0] Iron Chlorosis on Calcareous Soil

[ ] Other *(Specify)* _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] Mexican Bean Beetle *(Epilachna varivestis)*

[2] Potato Leaf Hopper *(Empoasca fabae)*

[ ] Other *(Specify)* _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Young	Seed Coat Luster	Bryan
Leaf Shape	Brim	Seed Size	Bryan
Leaf Color	Brim	Seed Shape	Bryan
Leaf Size	Bryan	Seedling Pigmentation	Tracy

22. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
Doles Submitted	157	1.8	84	—	—	41.3	21.7	12.4	—
Bryan Name of Similar Variety	159	1.7	96	—	—	39.4	20.9	13.5	—

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.

2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.

3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A_2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.

4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

EXHIBIT E
THE UNIVERSITY OF GEORGIA RESEARCH FOUNDATION
STATEMENT OF APPLICANT'S OWNERSHIP

The variety for which plant variety protection is hereby sought was developed by H. Roger Boerma, E. Dale Wood, Richard S. Hussey, and Daniel V. Phillips, employees at the University of Georgia Agricultural Experiment Station. The Georgia Agricultural Experiment Station is a part of The University of Georgia. The University of Georgia is one of the universities of the University System of Georgia. The Board of Regents of the University System of Georgia ("Board of Regents") is a body that was created by the Constitution of the State of Georgia and is charged with the responsibility of operating the Universities in The University System of Georgia. The University of Georgia Research Foundation, Inc. is a Georgia nonprofit corporation which was incorporated to, among other things, own and exploit intellectual property developed or created at The University of Georgia. On June 9, 1982 the Board of Regents approved a Patent Policy regarding inventions and discoveries by persons employed at The University of Georgia. As an employee at the Georgia Agricultural Experiment Station, H. Roger Boerma, E. Dale Wood, Richard S. Hussey, and Daniel V. Phillips are subject to said Patent Policy. Rights in novel plant varieties developed at The University of Georgia, including Doles, are covered by said Patent Policy. By agreement, the Board of Regents assigned to the University of Georgia Research Foundation, Inc. all rights in intellectual property covered by said Patent Policy. This agreement applies to then existing intellectual property and to intellectual property which was developed thereafter.